

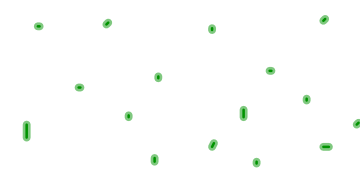


## 54 Fitting a Line to Data

## Vocabulary Words:

- ★ **Correlation** - the relationship between two variables
- ★ **Line of best fit (trend line)** - is a line that best represents the data on scatter plot
- ★ **Positive correlation** - the data displayed on the graph resembles a line rising from left to right  

- ★ **Negative correlation** - the data displayed on the graph resembles a line falling from left to right  

- ★ **No correlation** - the data displayed on the graph neither resembles a line rising nor falling from left to right  


How to write an equation of a line of best fit.

1 Carefully plot ordered pairs

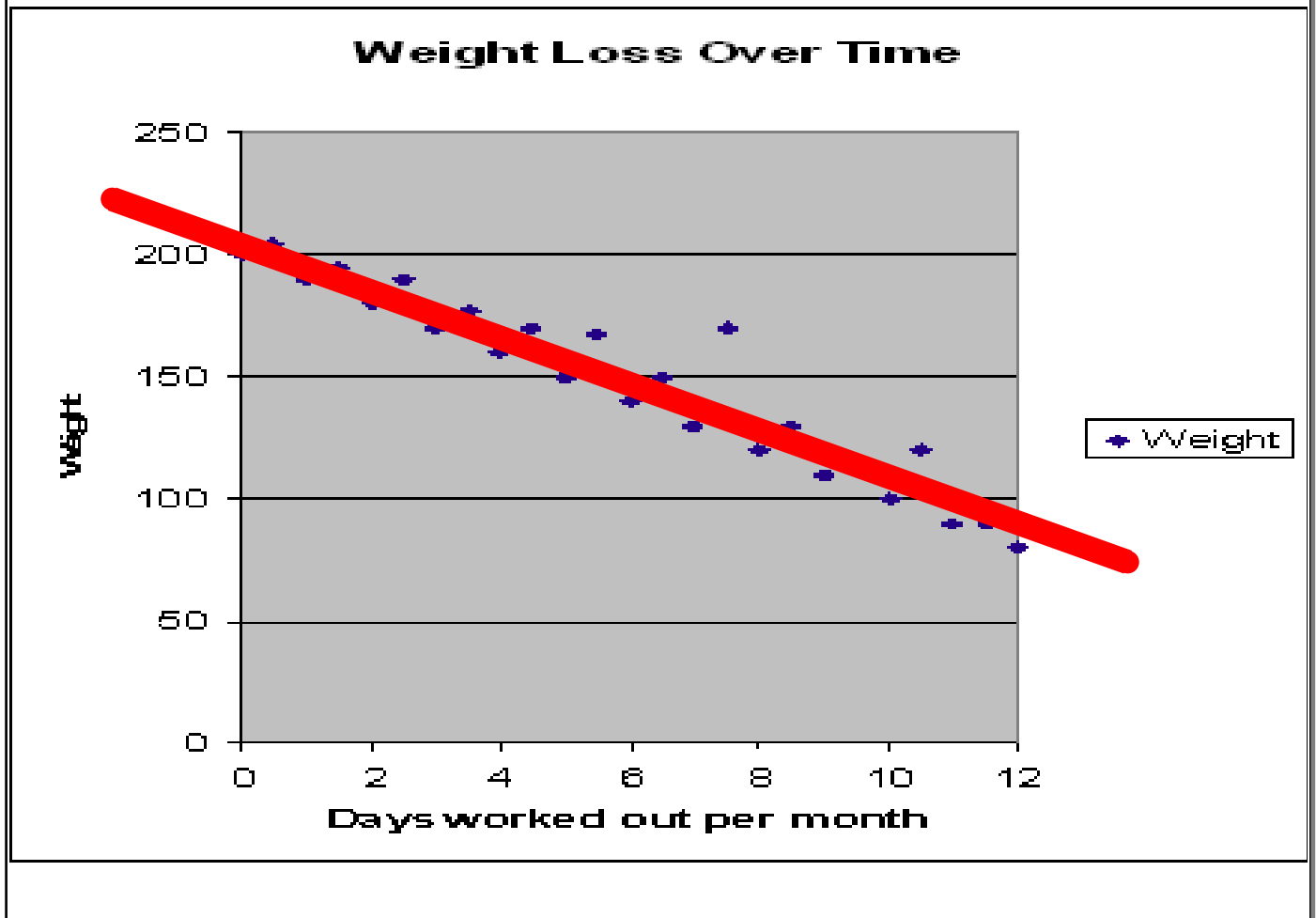
2 Use a ruler to draw in a line of best fit

3 Find 2 lattice points on the line- they DO NOT HAVE TO BE THE ORDERED PAIRS YOU PLOTTED

4 Use the ordered pairs to calculate  $m$  and  $b$

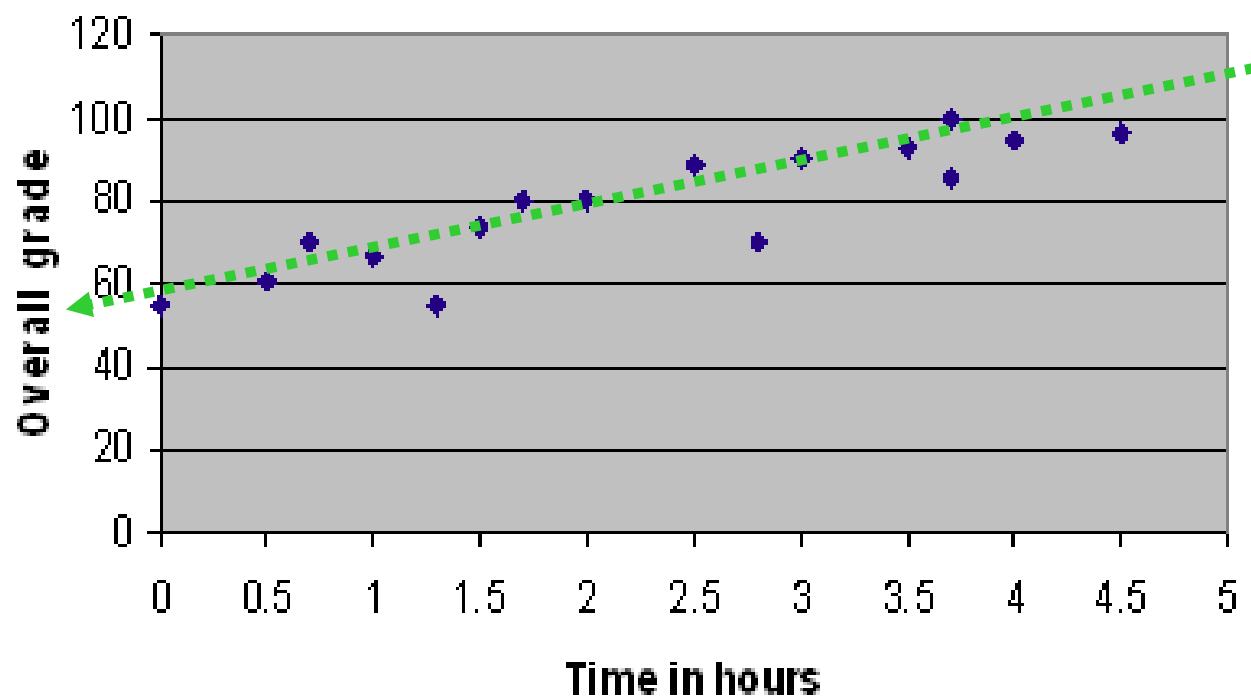
5 Using  $m$  &  $b$ , write the equation of the line

## Draw the line of best fit



## Draw the line of best fit

How Study Time Affects Grades



## Draw the line of best fit

How shirts affect salary



Graph the following ordered pairs.

Draw a line of best fit.

Write the equation of the line of best fit.

$(-3, 5)$

$(-1, 3)$

$(0, 0)$

$(1, 1)$

$(2, 0)$

$(0, -2)$

$(2, -1)$

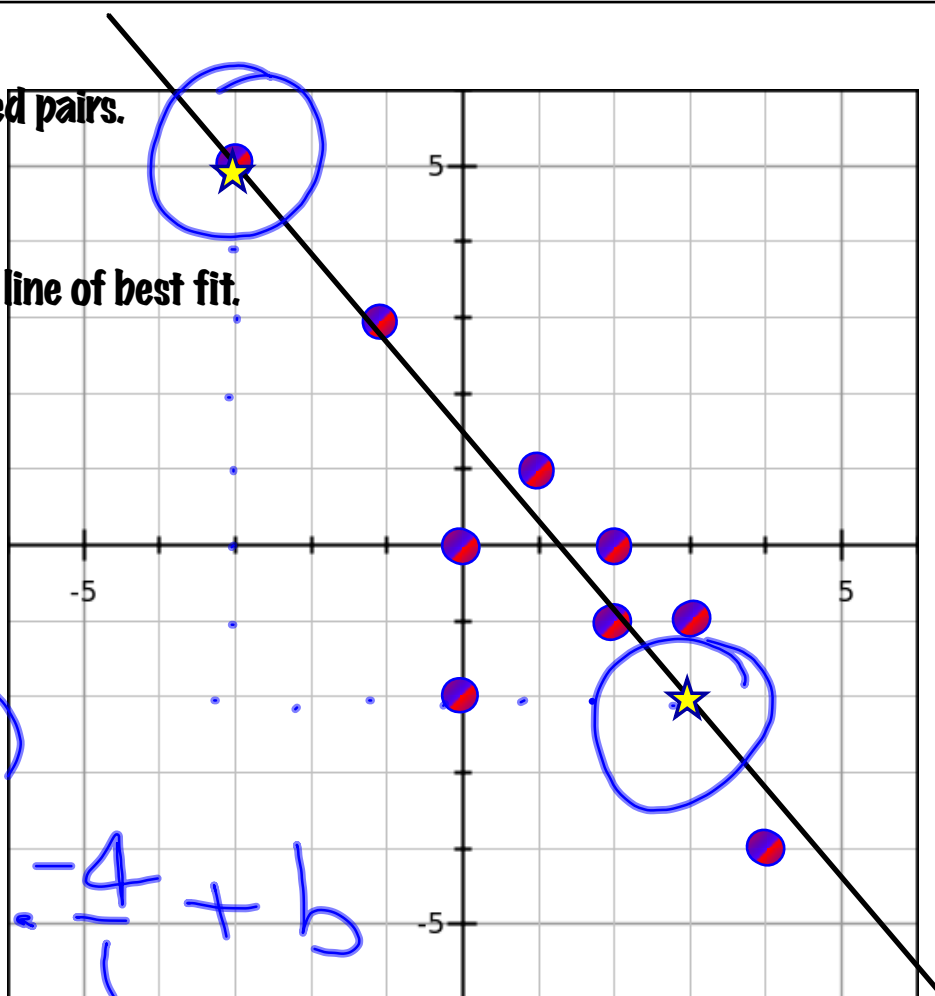
$(3, -1)$

$(4, -4)$

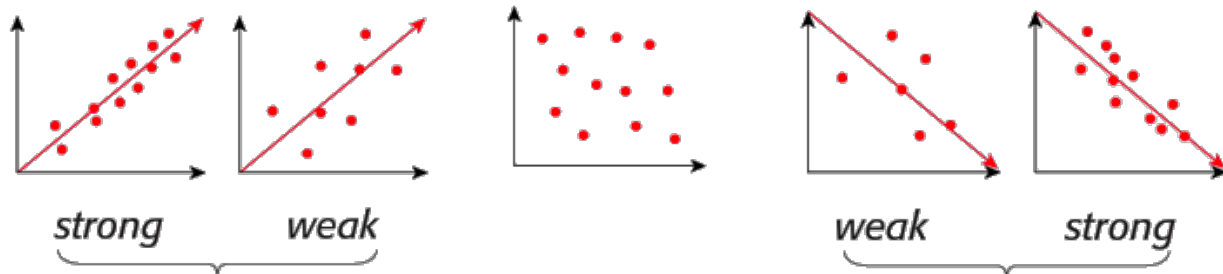
$$m = -\frac{7}{6}$$

$$(-4, 5)$$

$$5 = -\frac{7}{6} \cdot \frac{-4}{1} + b$$



# Correlation



**Positive correlation; both data sets increase together.**

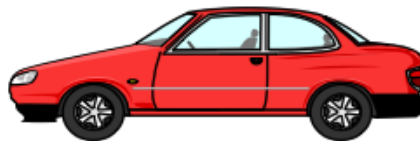
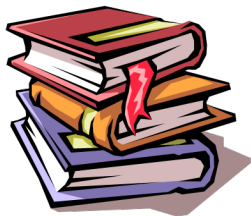
**No correlation; there is no relationship between the data sets.**

**Negative correlation; as one data set increases, the other decreases.**



**A Correlation can be predicted without having to observe the data in a table or graph.**

**Given the examples, what is the correlation?  
(positive, negative, or no correlation)  
Pick a Picture**





★ **Your grade point average and the number of A's you receive.**

Positive

Negative

None

★ **Time spent studying and the grade on your test.**

Positive

Negative

None

**GO BACK**

## The size of a person and the number of fingers he has

Positive

Negative

None



GO BACK

★ The weight and height of each member of a soccer team.

Correct

Negative

None

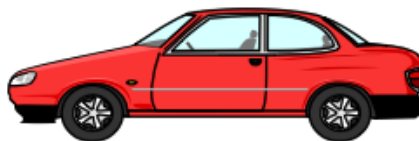


★ **The size of a car or truck and the number of miles per gallon of gasoline it can travel.**

Positive

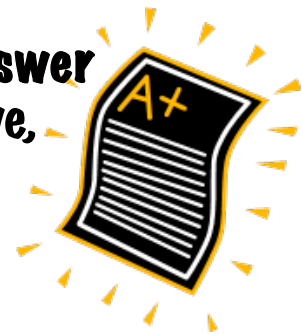
Correct

None



**GO BACK**

**Test Yourself....write these down & answer**  
**Do the data sets have a positive, negative, or no correlation?**



**1. The minimum wage and the year**

**CLICK**

positive

**2. The amount of precipitation and the day of the week**

**CLICK**

no correlation

**3. The amount of germs on your hands and the number of times you wash your hands in a day**

**CLICK**

negative